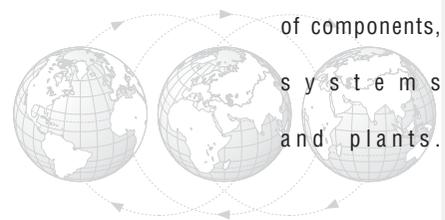


BARTEC protects  
people and  
the environment  
by the safety

of components,  
systems  
and plants.



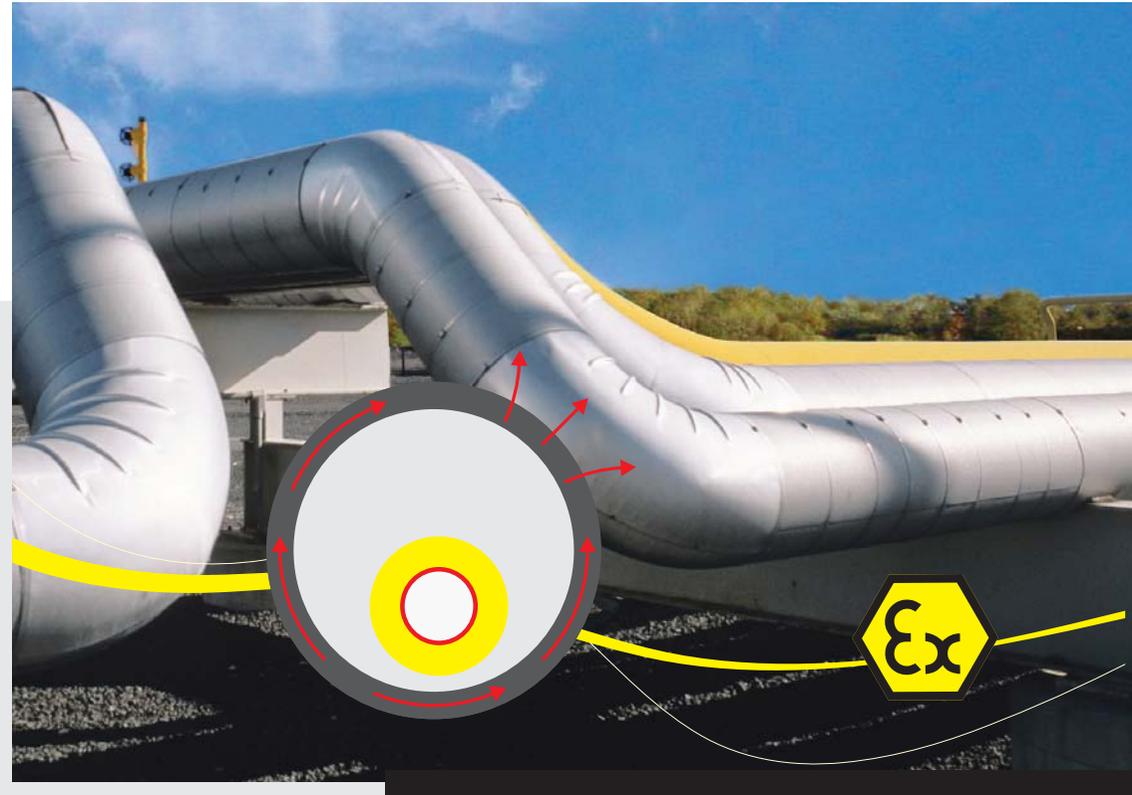
**The BARTEC company**

Within 35 years, the German engineering company has developed into the international high tech company BARTEC, one of the leading suppliers of safety technology.

Our innovative spirit and consistent product development are the basis for innovative solutions and exemplary performance at BARTEC. BARTEC sets standards in safety technology worldwide.



Headquarters in Bad Mergentheim



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SEH

**SEH** Skin Effect Heating System

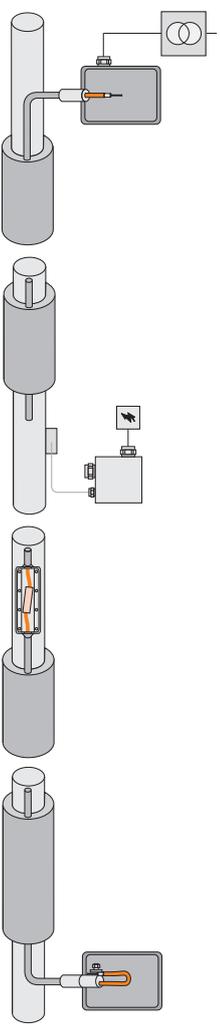
# Skin Effect Heating

## BARTEC

Your partner for  
Electric  
Heating  
Systems

## The Innovative Skin Effect Heating System SEH

The SEH is an industrial electric heating system using the AC phenomenon with a remarkable effect on the inner surface of a ferromagnetic tube. Different from other technologies, it offers great advantages for long lines applications up to 20 km with only one feeding point. The capabilities goes up to +200 °C applications in explosion-hazardous or non-hazardous areas.



Up to 20 km with one feeding point

Most cost effective

No electrical insulation required

Operating temperature up to +200 °C



### Take advantage of these SEH benefits:

**Minimum quantity of heating elements power supply points**  
According to the designing experience of these systems, the maximum length of one line of SEH system may be up to 10 000 m. By boosting two segments of the line from one point, the distance between power supply points may be up to 20 000 m.

**Less investment costs against other heat tracing systems**  
That is supported by the fact that in SEH system cable of a big section is discharged from heat generating and in fact performs the function of an integrated covering power network.

**Electrical safety**  
The external surface of heating element (heat tube) has a zero potential against earth. It is grounded and shields and protects completely the current-carrying conductor located inside.

**Good thermal contact**  
Metal heat generating element (heat tube) is welded directly to the main pipeline or is tightly attached to it. This guarantees a high energy efficient the high power output and a temperature up to +200 °C.

**Reliability**  
Strong heat generating elements in form of steel tubes provide mechanical strength and protection of current-carrying conductors from damage. Heat generating elements do not have outer insulation, which can be damaged while installing.

The specialists  
from BARTEC

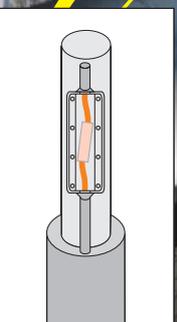
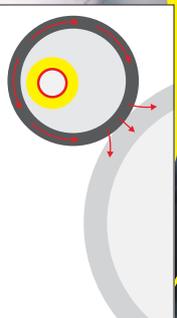
have many  
years of  
experience  
in Electric  
heating  
systems  
They create  
solutions  
you can rely on:  
economical,  
dependable and  
future-proof.

### Function principle

The heating element is a low carbon steel heat tube, inside of which a insulated conductor is placed. At the end of the run the conductor is connected to the heat tube. At the beginning of the run alternating voltage is being applied between the heat tube and the conductor.

Alternative current runs through the whole inner conductor section. In the outer ferromagnetic conductor (heat tube) the Skin Effect is clear cut and the whole current runs through the internal pipe layer with about 3 mm thickness.

Due to light thickness of the Skin-layer, basic heat generating (up to 80 %) is being performed in the steel pipe. At the beginning and at the end of the circuit the outer surface of the Skin-tube is reliably grounded what ensures additional safety of the SEH system.



### Applications

SEH is the most cost effective way of heat tracing of all kind of long lines in explosion-hazardous or non-hazardous areas much as:

- Transfer lines
- Loading/unloading lines
- Subsea/submerged lines
- Tank foundation heating

